TRANSLATION FROM JAPANESE

(19) JAPANESE PATENT OFFICE (JP)
(12) Official Gazette for Unexamined Patent Applications (A)
(11) Japanese Unexamined Patent Application (Kokai) No. Heisei 7-223653
(43) Disclosure Date: 22 August 1995

(51) Int. Cl.[6]:	Classification Symbols:	Internal Office Registration Nos.:	FI
B 6 5 D 33/00		C	
33/25		A	

Place for Technological Display
Number of Claims: 9
Request for Examination: Not yet submitted
FD (Total of 6 pages [in the original])

(21) Patent Application No.: Heisei 6-37648

(22) Filing Date: 10 February 1994

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(54) [Title of the Invention] Packing bag

(57) [Abstract] (with amendments)
[Configuration] Packing bag 1 comprising a laminated body which has a seal 2 in its periphery and, in the upper section of which, a zip 3 is provided in the transverse direction, and furthermore, a broken line for tearing 4 is formed above the abovementioned zip 3 and parallel with the abovementioned zip 3, which bag 1 is characterized in that the abovementioned broken line for tearing 4 is formed in at least one outer-side layer from which the abovementioned laminated body is configured, and is not formed in an inner-side layer which comprises at least one layer. It is preferable that the inner-side layer, in which the abovementioned broken line for tearing 4 is not formed, comprises an aluminium layer.

[Effect] The section above the zip can be severed easily prior to the opening of the zip, and moreover, the airtightness characteristics of the bag can be maintained, and the stability and shelf life of the packaged contents can be ensured. In addition, in that it is less conspicuous in terms of external appearance than the perforations of the prior art, there is no loss of bag aesthetics.

[Claims]

[Claim 1] Packing bag comprising a laminated body which has a seal in its periphery and, in the upper section of which, a zip is provided in the transverse direction, and furthermore, a broken line for tearing is formed above the abovementioned zip and parallel with the abovementioned zip, which packing bag is characterized in that the abovementioned broken line for tearing is formed in at least one outer-side layer from which the abovementioned laminated body is configured, and is not formed in an inner-side layer which comprises at least one layer.

[Claim 2] Packing bag according to Claim 1, characterized in that the inner-side layer, in which the above-mentioned broken line for tearing is not formed, comprises an aluminium layer.

[Claim 3] Packing bag according to Claim 1, characterized in that the inner-side layer, in which the above-mentioned broken line for tearing is not formed, comprises an aluminium layer and a polyethylene layer.

[Claim 4] Packing bag according to any of Claims 1 to 3, characterized in that the outer-side layer, in which the above-mentioned broken line for tearing is formed, comprises a paper layer.

[Claim 5] Packing bag according to any of Claims 1 to 3, characterized in that the outer-side layer, in which the above-mentioned broken line for tearing is formed, comprises a paper layer and a polyethylene layer.

[Claim 6] Packing bag according to any of Claims 1 to 3, characterized in that the outer-side layer, in which the above-mentioned broken line for tearing is formed, comprises a cellophane layer, a paper layer and a polyethylene layer.

[Claim 7] Packing bag according to any of Claims 1 to 6, characterized in that the ratio of groove section length of the above-mentioned broken line along the transverse direction of the above-mentioned packing bag to the distance between adjacent groove sections is 1:1 to 5:1.

[Claim 8] Packing bag according to any of Claims 1 to 6, characterized in that the ratio of the groove section length of the above-mentioned broken line along the transverse direction of the above-mentioned packing bag and the distance between adjacent groove sections is 2:1 to 4:1.

[Claim 9] Packing bag according to any of Claims 1 to 6, characterized in that the above-mentioned bag is employed for the packing of medical products, body warmers, food products, pulverulents, table luxuries, chemical materials, cosmetics, and toiletry products.

[0001]
[Field of Industrial Utilization] The present invention relates to a packing bag. More specifically, the present invention relates to a packing bag comprising a laminated body with a zip and a broken line for tearing of a specific configuration.

[0002]
[Prior Art] The provision of a zip at the top of a bag for the opening and closing of a packing bag, and the further provision of, in order to afford the opening and closing of the zip, a perforation-type broken line above the zip, is well known in the prior art (see Utility Model No. 4-23796). The advantage of the administering of this kind of processing is that a cutting implement such as scissors is unnecessary for the opening of the seal of the bag and, because the seal can be opened directly with the fingers, the appearance is good after cutting and no damage is caused to the zip section. However, with the provision of perforations in a bag, problems arise in that the airtightness characteristics of the bag body cannot be maintained, and the stability and shelf life of the contents of the package cannot be ensured. More particularly, where the contents of the package are, for example, medical products such as compresses and ointments; body warmers; dried products such as flaked bonito, half-dried bonito, noodles and seaweeds; food products such as foods boiled down in soy and pickles; pulvurelents of wheat and starch; table luxuries such as green tea, coffee and black tea; chemical materials such as chemical fertilizers and spices; cosmetics; and toiletry products such as perfumes and shampoos, an undesirable reduction in product value is brought about by, for example, drying and evaporation of the contents, imparting of moisture to the contents, leaking of the odour of the contents to the exterior of the packing bag, volatilizing of the volatile components of the contents, and a degeneration of the components.

[0003]
[Problems to be Solved by the Invention]
Thereupon, the objective of the present invention is the provision of a packing bag in which the opening of the seal is easy, and moreover, in which the airtightness characteristics are better and the stability and shelf life of the packing bag contents can be maintained.

[0004]
[Means to Solve the Problems] The inventors of the present invention discovered that the above-mentioned objective could be achieved by, using a bag comprising a laminated body, the adoption of a broken line for tearing of a specific configuration provided above a zip, whereupon the present invention was completed. That is to say, the present invention is a packing bag comprising a laminated body which has a seal in its periphery and, in the upper section of which, a zip is provided in the transverse direction, and furthermore, a broken line for tearing is formed above the abovementioned zip and parallel with the abovementioned zip, which packing bag is characterized in that the abovementioned broken line for tearing is formed in at least one outer-side layer from which the abovementioned laminated body is configured, and is not formed in an inner-side layer which comprises at least one layer.

[0005]
[Action] By virtue of the fact that the packing bag body of the present invention comprises the configuration described above, the section above the zip can be severed easily and, moreover, the air tightness characteristics of the bag can be maintained and, for that reason, the shelf life and stability of the contents of the bag can be ensured, and the leak of the odour of the contents of the bag to the exterior of the bag can be prevented. In addition, as the broken line for tearing of the packing bag of the present invention is less conspicuous in terms

of external appearance than the perforations of the prior art, there is no loss of bag aesthetics.

[0006]
[Embodiment] A detailed description of the present invention, with reference to the diagrams, is given below. Figure 1 is a front-surface view of the packing bag of the present invention. As shown in Figure 1, in a packing bag 2 of the present invention, a seal 2 is administered in the perimeter thereof, a zip 3 is provided in the transverse direction of the upper part of the bag, and a broken line for tearing 4 is formed above the zip 3. Although there are no specific limitations to products that can be packaged in the bag of the present invention, notably, medical products such as compresses and ointments; body warmers; dried products such as instant noodles, spaghetti, laver, seaweed, dried and half-dried bonito; food products such as pickles and foods boiled down in soy: pulverulents such as soup stock, wheat, edible starch and salted rice-bran; table luxuries such as green tea, coffee and black tea; chemical materials such as chemical fertilizers and spices; cosmetics; and toiletry products such as perfumes and shampoos, are suitable. The above-mentioned packing bag 1 is configured from a laminated body. The above-mentioned laminated body is a composite laminated film comprising at least two layers and, for the purpose of improvement to the airtightness characteristics of the bag, it is preferable that the inner-side layer comprises an aluminium layer. The laminated body of the present invention can be manufactured by any commonly used methods employed in the manufacture of composite laminated films, by way of example, the dry laminated method, wet laminated method, hot-melt laminated method, and exclusion laminated method.

[0007] The layer from which the abovementioned laminated body is configured comprises at least 2 layers

selected from a group comprising, for example, paper, non-woven cloth, cellophane, nylon, polyethylene, polyester, polypropylene, polyvinyl chloride, ionomers, polyamides, polyacrylonitrile, olefins, polvinylidene chloride, polyvinyl alcohol, ethylene - vinyl acetate copolymer, polycarbonates, polystyrene, ethylene - vinyl alcohol copolymer, ethylene - acryl copolymer and aluminium. The layered configuration of the laminated body of the present invention, of which there are no particular limitations thereto, may constitute any type of composite laminate film normally used in packing bags.

[0008] A description is given below, with the cited examples, of the layered configuration of the laminated body of the present invention. By way of example, in the case where the contents of the bag are medical products such as compresses and ointments, the layered configuration of the laminated body can comprise, from the outer side to the inner side, a layered configuration of, for example:
(1) paper layer/ polyethylene layer/ aluminium layer/ polyethylene layer; (2) cellophane layer/ paper layer, polyethylene layer/ aluminium layer/ polyethylene layer; and (3) cellophane layer/ polyethylene layer/ paper layer/ polyethylene layer/ aluminium layer/ polyethylene layer.

[0009] In addition, in the case where the contents of the package are body warmers, the layered configuration of the laminated body can comprise, from the outer side to the inner side, a layered configuration of, for example: (4) polyethylene layer/ polyvinylidene chloride layer/ polypropylene layer; (5) vinylidene chloride-coated polypropylene layer/ polyethylene layer; and (6) vinylidene chloride-coated vinylidene layer/polyethylene layer.

[0010] In addition, in the case where the contents of the package are dried bonito flakes, the layered configuration of the laminated body can comprise, from the outer side to the inner side, a layered configuration of, for example: (7) polyvinylidene chloride-coated cellophane layer/ polyethylene layer; (8) polyvinylidene chloride-coated cellophane layer/ biaxially stretched polypropylene layer/ polyvinylidene chloride layer/ polyethylene layer; (9) biaxially stretched polypropylene layer/ polyvinyl alcohol layer/ polyethylene layer; (10) biaxially stretched polypropylene layer/ ethylene - vinyl acetate copolymer layer/ polyethylene layer; (11) polypropylene layer/ polyethylene layer; and (12) biaxially stretched polypropylene layer/ polyvinylidene chloride layer/ polyethylene layer/ polyvinylidene chloride layer/ polyethylene layer.

[0011] In addition, in the case where the contents of the package are noodles, spaghetti, laver or seaweed, the layered configuration of the laminated body can comprise, from the outer side to the inner side, a layered configuration of, for example: (13) biaxially stretched polypropylene layer/ polyethylene layer; and (14) biaxially stretched polypropylene layer/ non-stretched polypropylene layer. In addition, in the case where the contents of the package are a food product boiled in soy, the layered configuration of the laminated body can comprise, from the outer side to the inner side, a layered configuration of, for example: (15) biaxially stretched polypropylene layer/ polyethylene layer; (16) nylon layer/ polyethylene layer; (17) polyvinylidene chloride-coated cellophane layer/ polyethylene layer; (18) biaxially stretched polypropylene layer/ polyvinylidene chloride layer/ polyethylene layer; (19) biaxially stretched polypropylene layer/ polypropylene layer/ polyethylene layer; (20) biaxially stretched polypropylene layer/ polyvinyl alcohol layer/ polyethylene layer; and (21) biaxially stretched

polypropylene layer/ polyethylene layer/ polyvinyl alcohol layer/ polyethylene layer.

[0012] In addition, in the case where the contents of the package are pickles, the layered configuration of the laminated body can comprise, from the outer side to the inner side, a layered configuration of, for example: (22) nylon layer/ polyethylene layer; (23) polyester layer/ polyethylene layer; (24) polyvinylidene chloride-coated cellophane layer/ polyethylene layer; (25) biaxially stretched polypropylene layer/ polyvinylidene chloride-coated cellophane layer; (26) biaxially stretched polypropylene layer/ polyvinylidene chloride layer/ polyethylene layer; (27) nylon layer/ polyvinylidene chloride layer/ polyethylene layer (28) polyester layer/ polyvinylidene chloride layer/ polyethylene layer; and (29) biaxially stretched polypropylene layer/ polypropylene layer/ polyethylene layer.

[0013] In addition, in the case where the contents of the package are pulverulents such as soup stock and wheat, the layered configuration of the laminated body can comprise, from the outer side to the inner side, a layered configuration of, for example: (30) polypropylene layer/ polyethylene layer/ aluminium layer/ polyethylene layer; and (31) polypropylene layer/ polyethylene layer/ (non-stretched polypropylene layer).

[0014] In addition, in the case where the contents of the package is green tea, the layered configuration of the laminated body can comprise, from the outer side to the inner side, a layered configuration of, for example: (32) polyvinylidene chloride-coated cellophane layer/ polyethylene layer; (33) biaxially stretched polypropylene layer/ polyvinylidene chloride-coated cellophane layer/ polyethylene layer; (34) polyethylene layer/ polyvinylidene chloride layer/ polyethylene layer; (35) biaxially stretched polypropylene layer/

polyvinylidene chloride layer/ polyethylene layer; (36) biaxially stretched polypropylene layer/ polyvinylidene chloride layer/ polyethylene layer/ non-stretched polypropylene layer; (37) polypropylene layer/ aluminium layer/ polyethylene layer (38) biaxially stretched polypropylene layer/ aluminium layer/ polyethylene layer;

[0015] (39) polypropylene layer/ polyethylene layer/ paper layer/ aluminium layer/ polyethylene layer; (40) polypropylene layer/ polyethylene layer/ paper layer/ polyethylene layer; (41) stretched nylon layer/ polyester layer/ aluminium vapor-deposited film layer/ polyethylene layer; (42) paper layer/ polyvinylidene chloride layer/ biaxially stretched polypropylene layer/ aluminium vapor-deposited film layer/ polyethylene layer; (43) paper layer/ polyester layer/ aluminium vapor-deposited film layer/ polyethylene layer; (44) moisture-proof cellophane layer/ aluminium layer/ paper layer/ polyethylene layer; and (45) moisture-proof cellophane layer/ polyethylene layer/ non-stretched polypropylene layer.

[0016] In addition, in the case where the contents of the package are table luxuries such as coffee and black tea, the layered configuration of the laminated body can comprise, from the outer side to the inner side, a layered configuration of, for example: (46) polyester layer/ aluminium layer/ polyethylene layer; and (47) moisture-proof cellophane layer/ polyethylene layer/ non-stretched polypropylene layer.

[0017] In addition, in the case where the contents of the package are cosmetics, chemical materials or toiletries, the layered configuration of the laminated body can comprise, from the outer side to the inner side, a layered configuration of, for example: (48) polyester layer/ non-stretched polypropylene layer; and (49) polyester layer/ aluminium layer/ polyethylene layer. These bag contents are housed in an inner part 11 of the

bag of the present invention that comprises a laminated body.

[0018] Although it is preferable that the thickness of the laminated body as a whole be 50 to 300 μm or more preferably 70 to 150 μm, there are no limitations thereto. Although there are no limitations to the thickness of each layer from which the laminated body is configured, by way of example, in the above-described (2) configuration, a 10 to 100 μm and more preferably 15 to 50 μm cellophane layer, a 20 to 200 μm and more preferably 50 to 100 μm paper layer, a 10 to 100 μm and more preferably 10 to 30 μm polyethylene layer, a 4 to 30 μm and more preferably 7 to 10 μm aluminium layer, and a 10 to 100 μm and more preferably 20 to 50 μm polyethylene layer can be adopted.

[0019] The broken line for tearing is formed in at least one outer side layer of the layers from which the above-mentioned laminated body is configured, and is not formed in the inner-side layer that comprises at least one layer. Although there are no particular limitations to the configuration of the outer-side layer in which the broken line for tearing is formed and the inner-side layer in which there is no broken line formed, it is preferable that the aluminium layer comprise an inner-side layer because, if this is the case, the air tightness characteristics of the bag can be maintained to a high degree. Figure 2, which is a cross-sectional view along I-I' of Figure 1, shows the configuration of the laminated body of the above-described (1). In a description thereof with reference to Figure 2, although a groove section 5 from which the broken line for tearing is configured is formed in an outer side paper layer 7 and polyethylene layer 8, said groove section 5 does not extend to an aluminium layer 9 and an inner-side polyethylene layer 10. In addition, in the configuration of the above-described (2), although the broken line for

tearing is formed in the cellophane layer, paper layer and polyethylene layer, the groove section does not extend to the aluminium layer and polyethylene layer. In addition, in the configuration of the above-described (3), although the broken line for tearing is formed in the cellophane layer, polyethylene layer, paper layer, and to reach the polyethylene layer, the groove section does not extend to the aluminium layer and polyethylene layer on the inner side thereof.

[0020] Based on the broken line for tearing of the present invention, despite the fact that the broken line is administered in only one part of the laminated body, tearing along the broken line and the linear severing thereof is possible if a small amount of force is applied to the end part of the broken line. Accordingly, there is no fall of cutting scraps, and the appearance of the bag following the severing by this tearing is good. No damage is caused to the zip section as a result of the tearing. As the bag is easily opened, this is particularly convenient in the case where the packed contents are medical products such as labelled medicines where in many instances the user is elderly, has contusion-type injuries, or is suffering muscular pain.

[0021] It will be noted that the broken line for tearing 4 may be formed in both surfaces or just one surface of the packing bag of the present invention, by way of example, if the broken line is formed in only one surface, the severing of the broken line for tearing can be performed easily. Although there are no particular limitations to the depth of the groove section from which the broken line for tearing 4 formed in the laminated body is configured, a depth of 70 to 90 μm, and more particularly 75 to 85 μm is preferred, and it is preferable that, because little force is required for the tearing, and moreover, the broken line is inconspicuous, the depth of the groove section be of the order of 60 to

90%, or more particularly 70 to 80%, of the thickness of the laminated body. It is preferable that the length of a groove section 5 along the transverse direction of the bag 1 be 1 to 6 mm, and more particularly 2 to 3 mm. In addition, it is preferable that the interval between a groove section and an adjacent groove section 6 of the bag 1 be 1 to 6 mm and, more particularly, 1 to 3 mm. Furthermore, it is preferable that a ratio of the length of the groove section along the transverse direction of the bag and the interval between adjacent groove sections (in Figure 2, ratio of length of groove section 5: length of interval 6) of 1:1 to 5:1 be adopted, and a ratio of 2:1 to 4:1 is more preferable as the tearing is particularly easy, and moreover, because tearing will not occur naturally during transportation.

[0022] Any method is suitable as the method of formation of the broken line for tearing of the present invention. By way of example, the laminated body of the present invention can be manufactured by the manufacture of an outer-side layer comprising at least one layer in which the broken line for tearing is to be formed, the formation of the broken line in these layers, and next, the affixing thereof to an inner-side layer comprising at least one layer in which the broken line for tearing is not formed. In addition, if a laminated body is manufactured which comprises an initial aluminium layer and, following this, a laser beam is irradiated on the outside of the laminated body, this is convenient because the aluminium layer reflects the laser beam wherein no broken line for tearing is formed in the layers below the aluminium layer, and the broken line is formed only in the layers above the aluminium layer.

[0023] In addition, as shown in Figure 3, the provision of a notch part 12 in the end part of the broken line for tearing 4 is preferable because, in dark places and for users with poor eyesight, the location of

the broken line is easy to find, and furthermore, the tearing can be performed with little force. The notch part 12 may be provided in one or both end parts of the broken line for tearing 4, and can be formed in any shape such as a V-shape, U-shape and S-shape.

[0024] It will be noted that, in the bag of the present invention, a seal 2 is provided in the perimeter of the bag for sealing support using a method such as heat fusion. All corner parts, or the two corner parts in the upper part of the seal, can be formed in a rounded shape. The adoption of a rounded shape is preferred because this prevents injury to the fingers of the user and, in addition, it stops the corner parts of the bags damaging each other. In addition, in the bag of the present invention, any type of zip 3 - which refers to a reopenable and closeable occlusion piece comprising a linking protrusion and a linking recessed part - is suitable, for example a fastener, slide-fastener or zipper.

[0025]
[Effect of the Invention] As is described above, because a specific broken line for tearing is formed above the zip in the packing bag of the present invention, the sealing correct characteristics are better compared with the bags of the prior art, and the shelf life and stability of the contents of the bag can be maintained. This is particularly useful where the contents of the bag are medical products such as compresses and ointments; body warmers; dried products such as instant noodles, spaghetti, laver, seaweed, dried and half-dried bonito; food products such as pickles and foods boiled down in soy; pulverulents such as soup stock, wheat, edible starch and salted rice-bran; table luxuries such as green tea, coffee and black tea; chemical materials such as chemical fertilizers and spices; cosmetics; and toiletry products such as perfumes

and shampoos because drying, evaporation, wetting, volatilizing of the components, odour leak to the outside of the bag and component degeneration can be prevented.

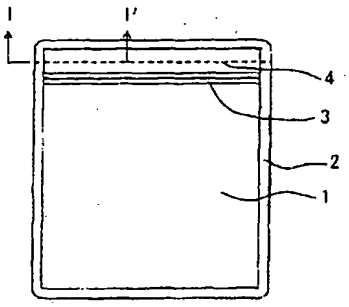
[0026] In addition, because the broken line for tearing provided in the bag of the present invention is less conspicuous in terms of external appearance compared to the perforations of the prior art, there is no loss of bag aesthetics. Moreover, in the packing bag of the present invention, despite the fact that the broken line for tearing is formed in only one part of the laminated body, the opening and closing is easy and, if a small amount of force is applied to the end part of the broken line for tearing using the fingers, thereafter, the severing thereof can be achieved by direct tearing along the broken line for tearing, whereupon there is no damage caused to the zip, and the appearance following the severing is good. This is particularly convenient as the bag can be opened easily even if the user of the bag is elderly, is a surgical patient with contusion-type injuries, or has poor eyesight.

[Brief Description of the Diagrams]
[Figure 1] is a front-surface view of the packing bag of the present invention;
[Figure 2] is a cross-sectional view along the line I-I' of the packing bag of Figure 1; and
[Figure 3] is a front-surface view that shows another embodiment of the packing bag of the present invention.

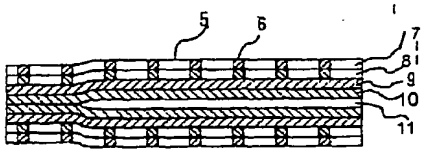
[Explanation of symbols]

1 Packing bag
2 Seal
3 Zip
4 Broken line for tearing
5 Groove section
6 Interval between groove section and groove section
7 Paper layer
8 Polyethylene layer
9 Aluminium layer
10 Polyethylene layer
11 Bag inner part
12 Notch part

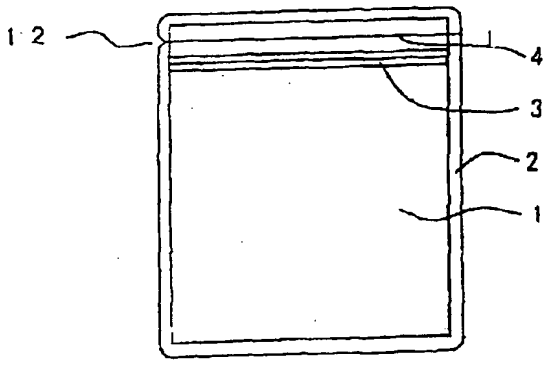
[Fig. 1]



[Fig. 2]



[Fig. 3]



Translator's Report/Comments

In translating the above text we have noted the following apparent errors/unclear passages which we have corrected or amended:

Page/para/line*	Comment
	Japanese proper nouns have many possible readings. Likely readings have been given throughout but some of the readings given in the bibliography could not be confirmed.

* This identification refers to the source text. Please note that the first paragraph is taken to be, where relevant, the end portion of a paragraph starting on the preceding page. Where the paragraph is stated, the line number relates to the particular paragraph. Where no paragraph is stated, the line number refers to the page margin line number.